

WHAT IS CLAIMED IS:

1. An apparatus for transmitting a multi-frame in multiplex transmission, comprising:

5 (a) a first interface through which a plurality of data traffics is input and output;

(b) a second interface through which a SONET/SDH frame is received from a SONET/SDH network and through which a SONET/SDH frame produced by multiplexing said data traffics is output to said SONET/SDH network;

10 (c) a mapper which receives said data traffics through said first interface, maps each of said data traffics, in a multi-frame including SONET/SDH frames by the number equal to or greater than the number of said data traffics, to each of said SONET/SDH frames, and transmits said SONET/SDH frames to said SONET/SDH network through said second interface; and

15 (d) a demapper which detects a multi-frame from said SONET/SDH frames which said second interface receives through said SONET/SDH network, extracts each of said data traffics out of each of said SONET/SDH frames constituting said multi-frame, and transmits the thus extracted data traffics through said first interface.

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2. The apparatus as set forth in claim 1, wherein said mapper and said demapper are constructed as a single unit.

25 3. The apparatus as set forth in claim 1, wherein said mapper inserts an identifier for identifying each of data traffics, into a head in each of said SONET/SDH frames.

4. The apparatus as set forth in claim 3, wherein said demapper identifies said data traffics, based on said identifier, for reproducing each of said data

traffics.

5. The apparatus as set forth in claim 1, wherein said mapper inserts error-monitoring data for monitoring a transmission error in each of data traffics, into a
5 head in each of said SONET/SDH frames.

6. The apparatus as set forth in claim 5, wherein said demapper judges whether there is a transmission error in each of said data traffics, based on said error-monitoring data.
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7. The apparatus as set forth in claim 5, wherein said error-monitoring data is produced in accordance with BIP-8.

8. The apparatus as set forth in claim 7, wherein said error-monitoring data
15 is produced in accordance with BIP-8, based on data about a SONET/SDH frame including the same data traffic in the previous multi-frame.

9. A method of transmitting a multi-frame in multiplex transmission, comprising the steps of:

- 20 (a) receiving a plurality of data traffics;
- (b) mapping each of said data traffics, in a multi-frame including SONET/SDH frames by the number equal to or greater than the number of said data traffics, to each of said SONET/SDH frames; and
- (c) transmitting said SONET/SDH frames through a SONET/SDH network.

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10. The method as set forth in claim 9, comprising the steps of:
- (d) detecting a multi-frame out of said SONET/SDH frames received through a SONET/SDH network;
- (e) extracting each of data traffics out of each of said SONET/SDH frames

constituting said multi-frame; and

(f) outputting said data traffics externally.

11. The method as set forth in claim 9, wherein said step (b) includes the step
5 of inserting an identifier for identifying each of data traffics, into a head in each of
said SONET/SDH frames.

12. The method as set forth in claim 11, further comprising the step of
identifying said data traffics, based on said identifier, for reproducing each of said
10 data traffics.

13. The method as set forth in claim 9, wherein said step (b) includes the step
of inserting error-monitoring data for monitoring a transmission error in each of
data traffics, into a head in each of said SONET/SDH frames.
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14. The method as set forth in claim 13, further comprising the step of
judging whether there is a transmission error in each of said data traffics, based
on said error-monitoring data.

15. The method as set forth in claim 13, further comprising the step of
20 producing said error-monitoring data in accordance with BIP-8.

16. The method as set forth in claim 15, wherein said error-monitoring data
is produced in accordance with BIP-8, based on data about a SONET/SDH frame
25 including the same data traffic in the previous multi-frame.